

**AMENDMENTS TO THE CLAIMS**

1. (Currently Amended) A ~~biostimulation~~ method for reducing or eliminating pathogens located in the oral cavity or in tissue associated with the oral cavity, comprising:

inserting at least a portion of a phototherapy applicator into the oral cavity;

irradiating an area of tissue in the oral cavity with radiation from the phototherapy applicator, the radiation having a power density in the range of approximately  $0.35 \text{ W/cm}^2 - 10 \text{ W/cm}^2$  and having at least one selected-wavelength component corresponding to the absorption spectrum of an endogenous a light acceptor in the oral cavity or in tissue associated with the oral cavity, the endogenous-light acceptor absorbing radiation having the at least one selected wavelength;

wherein the area of tissue is irradiated so as to cause a reduction in the number of the pathogens within the oral cavity or in tissue associated with the oral cavity ~~without application of an exogenous photosensitizer during the biostimulation method.~~

2. (Previously Presented) The method of claim 1, wherein said light acceptor is located within the pathogens being irradiated.

3. (Previously Presented) The method of claim 1, wherein said light acceptor is located within the tissue being irradiated.

4. (Cancelled)

5. (Currently Amended) The method of claim 1, ~~further comprising selecting a radiation power administered during each of said treatment sessions to be less than about 10 W~~ wherein said light acceptor is located within blood tissue being irradiated.

6. (Currently Amended) The method of claim 1, wherein the step of irradiating further comprises irradiating for a duration ~~further comprising selecting a time duration of each of said treatment sessions to be~~ in a range of about 10 s to about 1000 s.

7. (Cancelled)

8. (Cancelled)

9. (Previously Presented) The method of claim 1, wherein the light acceptor is at least one light acceptor from the group of porphyrins, cytochromes, molecular oxygen, coproporphyrins, cytochroms, cytogem, cytochromoxidase, cytoporphyrin, protoporphyrin IX, and bilirubin.

10. (Currently Amended) The method of claim 1, wherein the light acceptor absorbs is ~~responsive to~~ visible light.

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (Cancelled)

15. (Currently Amended) The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.38 to about 0.6 microns so as to cause controlled heating of oral cavity tissue at a depth below a mucosal lining.

16. (Currently Amended) The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.8 microns to about 100 microns so as to cause controlled heating of oral cavity tissue at a depth below ~~the~~ a mucosal lining.

17. (Previously Presented) The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.28 microns to about 1.4 microns.

18. (Previously Presented) A biostimulation method, comprising:

irradiating at least a portion of a subject's oral cavity with radiation having at least one selected wavelength component so as to cause a desired biostimulating effect;

irradiating at least a portion of a subject's oral cavity with radiation having wavelength components within a first bandwidth at a first selected time during the subject's circadian cycle, and

irradiating at least a portion of the subject's oral cavity with radiation having wavelength components within a second bandwidth at a second selected time during the subject's circadian cycle.

19. (Previously Presented) The method of claim 1, further comprising detecting diagnostic signals from said area of tissue to monitor treatment results.

20. (Currently Amended) A method of treating ~~a subject's blood~~ via an oral cavity by irradiating an endogenous light acceptor, comprising:

inserting at least a portion of a phototherapy device into an oral cavity;

irradiating ~~at least a portion of the tissue~~ at least one tissue surface within the oral cavity with radiation from the phototherapy device, the radiation having at least one selected wavelength range to irradiate the endogenous light acceptor and thereby treat blood flowing in vasculature of adjacent the oral cavity at least one tissue surface, the wavelength range being capable of being accepted by an endogenous light acceptor within the tissue, ;

wherein the endogenous light acceptor absorbs ~~absorbing~~ sufficient radiation from the at least one ~~selected-wavelength range~~ to treat the blood.

21. (Cancelled)

22. (Currently Amended) The method of claim 20, further comprising selecting said wavelength ~~range~~ to be in a range of about 280 nm to about 1.8 microns.

23. (Original) The method of claim 20, further comprising selecting said radiation to be in a range of about 280 nm to about 400 nm.

24. (Original) The method of claim 20, further comprising selecting said radiation to be in a range of about 300 nm to about 320 nm.

25. (Cancelled)

26. (Currently Amended) The method of claim 25, wherein said radiation power is in a range of about 250 mW ~~1 mW~~ to about 1 W.

27. (Previously Presented) The method of claim 20, wherein the step of irradiating further comprises exposing substantially an entire volume of the subject's blood to said radiation over one or more treatment cycles.

28. (Previously Presented) The method of claim 20, wherein the step of irradiating further comprises sufficiently irradiating to kill pathogens in the blood.

29. (Previously Presented) The method of claim 28, wherein said pathogens are any of bacteria, fungi and viruses.

30. (Previously Presented) The method of claim 20, wherein the light acceptor is at least one light acceptor from the group of bilirubin, porphyrins, cytochromes, molecular oxygen, coproporphyrins, cytochroms, cytogen, cytochromoxidase, cytoporphyrin, and protoporphyrin IX.

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Cancelled)

35. (Cancelled)

36. (Cancelled)

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Cancelled)

41. (Cancelled)

42. (Cancelled)

43. (Cancelled)

44. (Cancelled)

45. (Cancelled)

46. (Cancelled)

47. (Cancelled)

48. (Currently Amended) The method of claim 1, wherein the radiation has a ~~power density of 1-1000 mW/cm<sup>2</sup>~~ and a one-day dose of 0.06-30 J/cm<sup>2</sup>.

49. (Previously Presented) The method of claim 1, further comprising selecting said wavelength range to be in a range of about 280 nm to about 1.8 microns.

50. (Currently Amended) The method of claim 20, wherein the light acceptor is located within the blood ~~in the tissue~~.

51. (Currently Amended) The method of claim 20, wherein the light acceptor is located within pathogens contained within the blood ~~in the tissue~~.

52. (New) The method of claim 20, wherein the step of irradiating further comprises exposing substantially an entire volume of the subject's blood to said radiation in one treatment session.

53. (New) A method of biostimulation via an oral cavity, comprising  
irradiating at least a portion of tissue in an oral cavity with electromagnetic radiation having a power density in the range of approximately 0.35 W/cm<sup>2</sup> – 10 W/cm<sup>2</sup> and at least one wavelength corresponding to an absorption band of a photoreactive substance located in the portion of tissue;

wherein the photoreactive substance absorbs sufficient electromagnetic radiation to cause the selected biostimulation effect.

54. (New) The method of claim 53, wherein the step of irradiating further comprises irradiating for a duration in a range of about 10 s to about 1000 s.

55. (New) The method of claim 53, wherein the step of irradiating further comprises irradiating with an energy flux in the range of about 1 J/cm<sup>2</sup> to about 1000 J/cm<sup>2</sup>.

56. (New) The method of claim 53, wherein the step of irradiating further comprises irradiating with an energy flux in the range of about  $10 \text{ J/cm}^2$  to about  $100 \text{ J/cm}^2$ .